

## **DETAILED ACTION**

### **Status of the Claims**

Claims 1-19 have been cancelled.

Claims 20-38 are pending.

### ***Specification***

The lengthy specification has not been checked to the extent necessary to determine the presence of all possible minor errors. Applicant's cooperation is requested in correcting any errors of which applicant may become aware in the specification.

This application currently names joint inventors. In considering patentability of the claims under 35 U.S.C. 103(a), the examiner presumes that the subject matter of the various claims was commonly owned at the time any inventions covered therein were made absent any evidence to the contrary. Applicant is advised of the obligation under 37 CFR 1.56 to point out the inventor and invention dates of each claim that was not commonly owned at the time a later invention was made in order for the examiner to consider the applicability of 35 U.S.C. 103(c) and potential 35 U.S.C. 102(e), (f) or (g) prior art under 35 U.S.C. 103(a).

### ***Information Disclosure Statement***

Receipt of the Information Disclosure Statement filed on 06/16/05 is acknowledged and has been entered into the file. A signed copy of the 1449 is attached herewith.

### ***Claim Rejections - 35 USC § 112***

The following is a quotation of the second paragraph of 35 U.S.C. 112:

The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

Claims 20-38 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

1. On line 7 of claim 20, the claim has been defined as ----"at least one sulfonic acid or carboxylic acid selected from the group consisting of R-SO<sub>3</sub>H" ----. However, on line 14 the claim further reads ----"polycarboxylic acids; and R"-CO<sub>2</sub>H"----. Thus, it is not clear if the distillation occurs with sulfonic acid or carboxylic acid or sulfonic and carboxylic acids. Clarification is required.
2. Substituents R, R' and R" has been so ambiguously defined that it is not clear if R or R' or R" is the one that that carries substitution such as phosphoric acid groups, hydroxyl groups. How can these substituents be substituted by condensates of naphthalene or phenolsulfonic acids?

### **Claim Rejections - 35 U.S.C. § 103**

1. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains.

Patentability shall not be negated by the manner in which the invention was made.

2. The factual inquiries set forth in *Graham v. John Deere Co.*, 383 U.S. 1, 148 USPQ 459 (1966), that are applied for establishing a background for determining obviousness under 35 U.S.C. 103(a) are summarized as follows:

1. Determining the scope and contents of the prior art.
2. Ascertaining the differences between the prior art and the claims at issue.
3. Resolving the level of ordinary skill in the pertinent art.
4. Considering objective evidence present in the application indicating obviousness or nonobviousness.

3. Claims 20-38 are rejected under 35 U.S.C. 103(a) as being unpatentable over Fischer et al., (U.S. Patent number 6,022,988) in view of Woodbury et al., (U.S. Patent number 5,235,089).

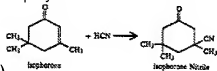
Applicants claim a process for preparing 3-cyano-3,5,5-trimethylcyclohexanone by reacting isophorone with hydrogen cyanide in the presence of a base catalyst to obtain a crude product, wherein sulfonic or carboxylic acid is added to the crude product before distilling the crude product to obtain the final product.

**Determination of the scope and content of the prior art (MPEP §2141.01)**

Fischer et al., teach the preparation of 3-cyano-3,5,5-trimethylcyclohexanone by reacting isophorone with hydrogen cyanide in the presence of a catalyst. See the entire reference, especially column 1, lines 1-7, column 2, lines 28-65.

**Ascertainment of the difference between the prior art and the claims (MPEP §2141.02)**

The difference between the current process and the Fischer process herein lies with the catalyst employed. Fischer et al., teaches the use of betane 1,3-dimethylimidazolium -4-carboxylate, whereas the current process requires catalyst such as alkali metal and alkaline earth metal hydroxides. However, Woodbury et al., teach the use LiOH catalyst during the preparation of 3-cyano-3,5,5-trimethylcyclohexanone. Note Woodbury et al., employ the same reactants as currently required (i.e., isophorone



and hydrogen cyanide)

Example 7 of Woodbury teaches the avoidance of precipitates during the process of preparing the compound (claims 30 and 34).

Note Fischer teaches the current process temperature of between 80 to 200°C in column 1, line 7 and column 2, lines 51-53 (claim 23). Also note similar process pressure (claim 24) is taught in column 2, lines 54-56. Note ratios of catalyst used in Fischer are similar to claims 21-22 (column 2, lines 57-60). Note in all instances the isophorone is recovered via distillation. Note the use of various sulfonic acids and carboxylic acids such as methanesulfonic and toluenesulfonic acids 2-ethylhexanoic acid column 3, line 47-52 (claims 37-38).

#### **Finding of prima facie obviousness---rational and motivation (MPEP §2142-2143)**

Accordingly, at the time of filing this application, it would have been *prima facie* obvious to one of ordinary skill in the art to prepare 3-cyano-3, 5, 5-trimethylcyclohexanone as disclosed by Fischer et al., guided by the disclosures of Woodbury et al., with a reasonable expectation that the resulting product would be pure because Woodbury discloses that the requisite catalyst has been shown to be useful for

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preparing 3-cyano-3, 5, 5-trimethylcyclohexnone. Hence, one in possession of Fischer et al., guided by the disclosure of Woodbury is in possession of the instant process absent a showing of unexpected results or properties. The reaction that is being claimed is a predictable and expected reaction. Thus, the use of a LiOH in the instant process per say is un inventive and *prima facie* obvious.

Accordingly, the instantly claimed process would therefore have been suggested to one of ordinary skill in the art.

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Any inquiry concerning this communication or earlier communications from the examiner should be directed to E. Sackey whose telephone number is (571) 272-0704. The examiner can normally be reached on Monday-Friday from 7:30 am to 4:30 pm.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, James O. Wilson, can be reached on (571) 272-0661. The fax phone number for this Group is (571) 273-8300.

Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the Group receptionist whose telephone number is (571) 272-1600.

EOS

/James O. Wilson/  
Supervisory Patent Examiner, Art Unit 1624